

# A DEFINING BREAKTHROUGH

## ULTRA-THIN PIEZOELECTRIC SCANNING STAGE

Nanonics presents a novel, patented planar, folded-piezo, flexure scanner design that allows simultaneous lateral and axial sample scanning as well as coarse inertial positioning. The ultra-thin package permits the scanner to be incorporated into systems where conventional scan stages would be too bulky. This unique device, developed for Nanonics' near-field scanning optical microscope, is now available as a stand alone addition for all scanning applications.

Place the Nanonics 3D Flatscanner™ on the stage of any optical microscope and enhance your microscope by providing super-resolution X, Y *and* Z movement of the sample by up to 70 microns. The ultrafine, large extension Z movement of the 3D Flatscanner allows for optical sectioning with any lens of the microscope and without movement of critical optical components. This latter capability is especially important for 3 D imaging techniques such as confocal and CCD based optical sectioning, 4 Pi and non-linear far-field optical imaging. Also the singular combination of 3 dimensional scanning in an ultrathin, simply controlled device with a clear central aperture, makes this scanner the ideal solution for optical tweezers applications.

In scanned probe microscopies, including near-field scanning optical microscopy, the large central clear aperture and the minimal stage height of 7 mm allow for access with high powered microscope objectives from either above or below the scanning stage. Furthermore, the large vertical (axial) displacement of up to 70 microns simplifies the approach to a sample and allows tracking of structures with very large topographical features.

In addition, the 3D Flatscanner can electronically scan your sample by many millimeters in x and y with 1 micron resolution to find a region of interest of your sample, while providing fine electronic movement with sub-Angstrom resolution over 70 microns. The scanner can be controlled by any commercial or homebuilt scanned probe software can run the scanner for you application. Nanometer resolution position sensors can also be provided. Such sensors can furnish appropriate signals for scan correction and/or high resolution monitoring of the scanner position as a function of applied voltage.

### The scanner is available in three versions:

**NIS-10** An ultra high-resolution system (<0.1 nm z noise) which provides atomic resolution without sacrificing any of the inertial motion capabilities of the system

**NIS-30** A super high-resolution scanning system (<1 nm z noise) which has nanometer resolution and the coarse inertial motion capabilities that are a part of all of our stages

**NIS-70** A high-resolution scanning system (<10 nm z noise) with extended scan range and inertial motion capabilities

### Specifications:

Length/Width	70 x 70 mm
Height	7.4 mm
Weight	150 gm
Drive voltage	+/- 125 volts
Scan range (Lateral)	70 microns (NIS-70) 30 microns (NIS-30) 10 microns (NIS-10)
Scan range (Axial)	70 microns (NIS-70) 30 microns (NIS-30) 10 microns (NIS-10)
Inertial translation range	6 mm
Positioning accuracy	Sub-nanometer
Maximum load	75 gm
Resonance frequency	~760 Hz (NIS-10) ~400 Hz (NIS-30) ~280 Hz (NIS-70)
Central opening	24 mm

### Additional features include:

- Symmetric design minimizes piezo hysteresis
- Optional magnetic sample mounting
- Optional embedded optical sensors

**Upgrade now to the scanner of the new millennium. The 3D FlatScanner™ with a clear central aperture and the flexibility to achieve all your scanning needs**

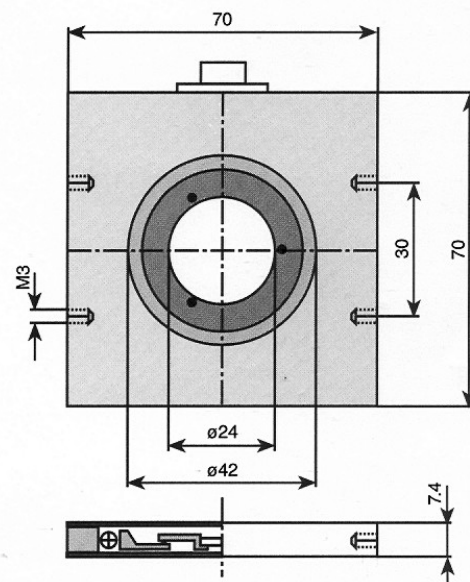
Scanned Probe  
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Ultra Resolution Optical Fiber Positioning



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